IN THE CLAIMS

Claim 1 (previously presented): A process for continuously manufacturing a rigid void-free composite product, comprising the steps of:

preparing intimately blended commingled threads containing glass filaments and filaments of thermoplastic organic material;

providing a strip of fabric made from the intimately blended commingled threads and a plurality of continuous threads including at least 80% by weight of the intimately blended commingled threads;

continuously depositing onto a moving conveyor two layers, one of the two layers including said plurality of continuous threads in a form of at least one of continuous threads continuously deposited in a direction of movement of said moving conveyor, continuous threads continuously deposited in a form of superposed loops and continuous threads continuously deposited in a form of chopped threads, and the other one of the two layers including said strip of fabric;

continuously transferring said two layers combined through a plurality of zones where said two layers are heated and cooled while being sufficiently compressed to form a continuous rigid void-free composite material capable of being molded; and

at least one of cutting up said rigid void-free continuous composite material into a plurality of sheets and winding said continuous rigid void-free composite material onto a rotating drum,

wherein said glass filaments deposited in said process in total comprise more than 40 % by weight of said glass filaments and said filaments of thermoplastic organic material deposited in said process.

Claims 2-4 (canceled)

Claim 5 (previously presented): A process according to Claim 1, wherein said one of the two layers comprises exclusively said chopped threads.

Claim 6 (previously presented): A process according to Claim 1, wherein said other one of the two layers comprises exclusively continuous threads.

Claim 7 (previously presented): A process according to Claim 1, wherein a combination of said two layers thus formed is heated and is compressed on two faces before being cooled and cut up or wound.

Claim 8 (previously presented): A process according to Claim 7, wherein:

said one of the two layers is continuously deposited on said moving conveyor and is formed of said chopped threads;

said other one of the two layers is continuously deposited on said one of the two layers and is formed exclusively by said intimately blended commingled threads;

a third layer of chopped intimately blended commingled threads of glass filaments and filaments of a thermoplastic organic material is continuously deposited onto said other one of the two layers;

a combination of said two layers and said third layer thus formed is continuously transferred into a first zone where said combination is heated and then into a second zone where said combination is sufficiently compressed and heated to become rigid and void-free;

said combination is then continuously transferred into a third zone where said combination is sufficiently compressed and cooled to become rigid and void-free, thereby forming a continuous rigid void-free composite material capable of being molded; and

said continuous rigid void-free composite material is cut up at an exit of the third zone.

Claim 9 (previously presented): A process according to Claim 7, wherein:

said other one of the two layers is continuously deposited on said moving conveyor and is formed exclusively of said intimately blended commingled threads;

said one of the two layers is continuously deposited on said other one of the two layers and is formed of said chopped threads;

a third layer exclusively formed by intimately blended commingled threads of glass filaments and filaments of a thermoplastic organic material is continuously deposited onto said one of the two layers;

a fourth layer of chopped intimately blended commingled threads of glass filaments and filaments of a thermoplastic organic material is continuously deposited onto said third layer;

a combination of said two layers, said third layer and said fourth layer thus formed is continuously transferred into a first zone where said combination is heated, and then into a second zone where said combination is sufficiently compressed and heated to become rigid and void-free;

said combination is continuously transferred into a third zone where said combination is sufficiently compressed and cooled to become rigid and void-free, thereby forming a continuous rigid void-free composite material capable of being molded; and

the continuous rigid void-free composite material is cut up at an exit of the third zone.

Claim 10 (previously presented): A process according to Claim 7, wherein:

said other one of the two layers is continuously deposited onto said moving conveyor and is formed exclusively by said intimately blended commingled threads;

said one of the two layers is continuously deposited on said other one of the two layers;

a third layer formed exclusively by commingled threads of glass filaments and filaments of a thermoplastic organic material is continuously deposited onto said one of the two layers,

a fourth layer is continuously deposited on said third layer, said fourth layer being formed of commingled threads of glass filaments and filaments of a thermoplastic organic material;

a combination of said two layers, said third layer and said fourth layer thus formed is continuously transferred into a first zone where said combination is heated, and then into a second zone where said combination is sufficiently compressed and heated to become rigid and void-free;

said combination is continuously transferred into a third zone where said combination is sufficiently compressed and cooled to become rigid and void-free, thereby forming a continuous rigid void-free composite material capable of being molded; and

the continuous rigid void-free composite material is cut up at an exit of the third zone.

Claim 11 (previously presented): A process according to Claim 7, wherein the width of said one of the two layers is equal to the width of said other one of the two layers.

Claim 12 (previously presented): A process according to Claim 1, a weight of said glass filaments deposited in total represents at least half of the total weight of the two layers deposited onto the conveyer.

Claim 13 (previously presented): A device for manufacturing a rigid void-free composite product, comprising:

a storage device for a plurality of windings of commingled threads containing glass filaments and filaments of a thermoplastic organic material;

a cutter fed with a plurality of continuous threads extracted from said windings;

at least one device positioned and configured to transfer, store, and distribute said commingled threads chopped by said cutter in a form of a sheet;

at least one barrel supporting at least two rolls of fabric made of said commingled threads;

a conveyor positioned and configured to receive said commingled threads thus chopped and a strip of said fabric;

a preheating oven placed at an end portion of the conveyor;

a twin-belt press including a plurality of heating drums in an upstream portion of said twin-belt press and a plurality of cooled rollers in a downstream portion and a central portion of said twin-belt press, said heating drums being configured to sufficiently heat and compress said commingled threads chopped and said strip of fabric to become rigid and void-free, and said cooled rollers being configured to sufficiently cool and compress said commingled threads chopped and said strip of fabric to become rigid and void-free, thereby forming a rigid void-free composite material capable of being molded; and

an automatic guillotine device positioned and configured to cut the rigid void-free composite product,

wherein said glass filaments deposited in said process in total comprise more than 40 % by weight of said glass filaments and said filaments of thermoplastic organic material deposited in said process.

Claim 14 (previously presented): A device for manufacturing a rigid void-free composite product, comprising:

a storage device for a plurality of windings of commingled threads containing glass filaments and filaments of a thermoplastic organic material;

a conveyor positioned and configured to receive the commingled threads deposited in a form of at least one of strips of fabric, continuous threads and chopped threads;

a first barrel disposed upstream of said conveyor and supporting at least two rolls of fabric made of said commingled threads;

at least one distribution device configured to distribute said commingled threads in a form of continuous threads, said at least one distribution device being disposed above said conveyor;

a second barrel disposed downstream of said conveyor and supporting at least two rolls of fabric made of said commingled threads;

at least one of a second distribution device configured to distribute said continuous thread and a cutter followed by a third distribution device configured to distribute said continuous threads chopped by said cutter;

a preheating oven placed at an end portion of the conveyor; and

a twin-belt press including a plurality of heating drums in an upstream portion of said twin-belt press and a plurality of cooled rolls in a downstream portion and a central portion of said twin-belt press, said heating drums being configured to sufficiently heat and compress said commingled threads deposited onto said conveyor to become rigid and void-free, and said cooled rollers being configured to sufficiently cool and compress said commingled threads deposited onto said conveyor to become rigid and void-free, thereby forming a rigid void-free composite material capable of being molded; and

an automatic guillotine device positioned and configured to cut the rigid void-free composite product,

wherein said glass filaments deposited in said process in total comprise more than 40 % by weight of said glass filaments and said filaments of thermoplastic organic material deposited in said process.